

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a computing environment, a system comprising:
a first component that receives clock data and graphics data from a program through an API and wherein the first component comprises an event list generator and an interval generator;
wherein the an interval generator ion-mechanism of the first component computes that
computes interval data based on the clock data, and wherein the interval data corresponds to a
relative determination of time between a first event and a second event, the events being
generated by the event list generator; and
a second component that receives the interval data from the first component and determines an output based on the interval data and current time data, such that timing of the output is relative to both the interval data and the current time data.
2. (Original) The system of claim 1 wherein the output corresponds to a progress of an animation having an animated characteristic.
3. (Original) The system of claim 1 wherein the second component determines the output by interpolating a current progress value for the animated characteristic.
4. (Original) The system of claim 1 wherein the second component computes the output at a fast operating rate relative to an operating rate of the first component.
5. (Currently Amended) The system of claim 1, ~~further comprising an event list generation mechanism;~~ wherein the interval generator ~~ion-mechanism~~ computes the interval data from an event list provided by the event list generator ~~ion-mechanism~~, the even list based on the clock data.

6. (Currently Amended) The system of claim 5 wherein the first component receives an interactive event, and wherein the event list generator ~~generation mechanism~~ further adds the interactive event into the event list.

7. (Currently Amended) The system of claim 6 wherein the event list generator ~~generation mechanism~~ further adds at least one implicit event into the event list.

8. (Currently Amended) The system of claim 6 wherein the event list generator ~~generation mechanism~~ marks at least one event in the event list as unused, the interval generation mechanism not using an unused event in computing the interval data.

9. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a begin time value and a duration.

10. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a repeat count.

11. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a reverse instruction.

12. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to acceleration data.

13. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to deceleration data.

14. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a seek instruction.

15. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to speed data.

16. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to function data.

17. (Original) The system of claim 1 wherein the first component and second component execute on different threads.

18. (Currently Amended) In a computing environment, a method comprising:
receiving clock data by a first component;
the first component generating at least a first event and a second event using an event list generator;
the first component generating interval data based on the clock data, wherein the interval data corresponds to a relative determination of time between a the first event and a the second event; ~~and~~
causing output to be produced based on current time data and the interval data, such that timing of the output is relative to both the interval data and the current time data; and
providing the output to a second component which provides data to a graphics subsystem for display.

19. (Original) The method of claim 18 wherein causing output to be produced based on the current time data and the interval data comprises, determining an interval, and determining a progress value within that interval.

20. (Original) The method of claim 19 further comprising, causing an animation property value to be determined based on the progress value, such that the animation property value varies as the current time varies.

21. (Original) The method of claim 18 wherein generating interval data based on the clock data includes, building an event list based on the clock data, and processing the event list to generate the interval data.

22. (Original) The method of claim 21 further comprising receiving an interactive event, and further comprising, building a modified event list based on the clock data and the interactive event.

23. (Original) The method of claim 22 wherein building a modified event list comprises adding an implicit event based on the interactive event.

24. (Original) The method of claim 22 further comprising, marking an event as unused based on the interactive event.

25. (Original) The method of claim 18 wherein causing output to be produced based on current time data and the interval data comprises constructing a frame at a rate that corresponds to a frame refresh rate of a graphics subsystem.

26. (Currently Amended) A computer-readable storage medium having a computer-executable instructions for performing the method of claim 18.

27. (Currently Amended) A computer program product comprising a computer-readable storage medium having stored encoded thereon computer-executable instructions for performing a method, the method comprising: ~~a data structure, the data structure comprising:~~

a first component providing and API for receiving graphics data and for receiving clock data and comprising an event list generator and an interval generator;

the first component receiving graphics data from a program through the API;

the first component receiving clock data;

the first component generating an event list based at least in part on the clock data;

the first component generating timing interval data based at least in part on the event list;

a second component being enabled to receive data from the first component and further being enabled to interface with a graphics subsystem;

the first component passing to the second component an interval list;

the second component interpolating intervals to obtain instantaneous data; and

the second component providing graphics data to a graphics subsystem for display.

~~a first field having data indicative of begin time;~~

~~a second field having data indicative of an initial progress value;~~

~~a third field having data indicative of an end time;~~

~~a fourth field having data indicative of a final progress value; and~~

~~wherein a current time between the begin time and the end time is used to interpolate a progress value between the initial progress value and the final progress value.~~

28. (Currently Amended) A computer system comprising the computer-readable storage medium as recited in claim 27 and further comprising:

computer processors capable of executing the instructions encoded upon the computer-readable storage medium; and

a graphics subsystem enabled to display graphics based upon the graphics data provided by the second component.

~~The data structure of claim 27 further comprising a fifth field indicative of an iteration.~~

29. (Currently Amended) In a computing environment, a method comprising:

a first component generating an event list based on scheduled events and at least one interactive event;

the first component computing an interval list based on the event list;

the first component determining a current interval in the interval list based on a time value, wherein the interval data corresponds to a relative determination of time between a first event and a second event; and

a second component processing data associated with the current interval to produce an output based on the time value, such that timing of the output is relative to both the current interval and the time value; and

the second component providing the output to a graphics subsystem for display of graphics.

30. (Original) The method of claim 29 wherein generating the event list comprises receiving clock properties.

31. (Original) The method of claim 30 further comprising, generating another event list based on a relationship between the clock properties and properties of another clock.

32. (Original) The method of claim 29 wherein generating the event list comprises determining how a current state is modified by an event, and when the event modifies the current state to another state that cannot be directly transitioned to by that event, inserting at least one implicit event to transition the current state to the other state via an intermediate state.

33. (Original) The method of claim 32 wherein the current state is paused, the event corresponds to a begin event, and wherein inserting at least one implicit event comprises inserting an end event before the begin event such that the state transitions to the intermediate state comprising the inactive state transitions before transitioning to the other state corresponding to the active state.

34. (Original) The method of claim 29 wherein generating the event list comprises completing an iteration by inserting an implicit end event into the event list and starting a next iteration by inserting an implicit begin event into the event list.

35. (Original) The method of claim 29 wherein generating the event list comprises, marking an event as unused when the event will not change a state of operation.

36. (Currently Amended) A computer-readable storage medium having computer-executable instructions for performing the method of claim 29.